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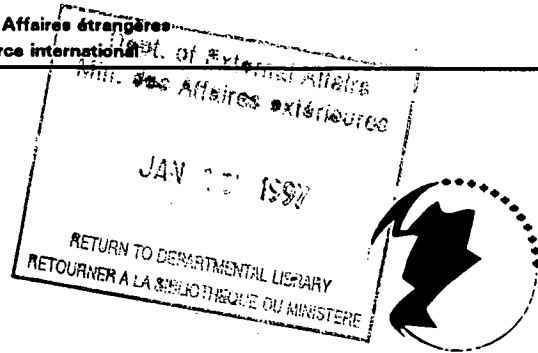
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Information technologies
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MARKET REPORT

Information Technologies

India



Team Canada - Équipe Canada

Market Opportunities Assessment

The Indian economy has a strong element of duality. In terms of industrial output and technological achievement it is, arguably, a giant. India has one of the world's largest pools of highly trained technical manpower. Its indigenous expertise extends into such advanced fields as nuclear energy, satellites, fighter airplanes and helicopters, software design, oceanography and deep sea oil drilling.

Since July 1991, the Government of India's (GOI) policy emphasis has increasingly been on encouraging the private sector. Foreign investment was encouraged and the ceiling on foreign equity holdings in India based companies was raised to 51%.

The Indian information technology (IT) industry has been growing steadily since the GOI announced its computer hardware and software policies in 1986. Since July 1991, the Indian IT industry has grown at an annual rate of 25-30%. Domestic industries manufacture a range of personal computers, note book computers, mini, supermini, large systems, and peripheral products. Local manufacturing of components is growing. However, Indian industry continues to import specialized computer systems, including mid-range and large systems. India makes some important peripherals such as hard disk drives, 3 1/2" floppy disks, tape drives, but also continues to import them. This trend is likely to continue for the next several years.

Most Promising Subsectors (estimated 1993 market size in US\$ millions)

Computers	650
Data acquisition systems	190
Peripheral	125
Add-ons	120

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Information Technology Industry in India

1993 - 1995

Sectors	1993-1994		1994-1995	
	Rs. m	US\$m	Rs. m	US\$m
Hardware				
Domestic	14 800	490	18 300	590
Exports	2 800	93	5 500	177
Total	17 600	422	23 800	767
Software				
Domestic	6 950	230	10 700	350
Exports	10 200	330	15 350	485
Total	17150	560	26 050	835
Maintenance	3 500	117	4 400	142
Others	7 000	233	9 200	297
Grand Total	45 250	1 493	63 450	2 041

Source: NASSCOM

Computers and Peripherals

While reductions in GOI purchases have had an effect on the computer hardware industry, private sector sales continue to bolster the industry. Computer peripherals have recorded average annual growth rates of 50% since 1992.

Dataquest, a leading computer magazine in India, estimated that the market for hard disk drives (HDD) in India grew from US\$3.2 million during 1992-93 to US\$5.6 million in 1993-94, an increase of 75%. The HDD market is projected to reach nearly US\$10 million by 1996.

Industrial automation projects to improve productivity will increase the demand for computer systems (with HDD) through the year 2000. Increasingly, industry is using computer based process control instrumentation in the manufacturing sector



such as Computer Aided Design (CAD), Computer Aided Manufacture (CAM), Computer Integrated Manufacture (CIM), and Material Resource Planning (MRP), for higher productivity and better quality. Existing users have been replacing low capacity HDDs by large capacity HDDs, creating new sales opportunities.

The banking, finance, insurance and stock market industries provided 8% of the total hardware sales in India during 1992-93. These sectors are currently expanding and have plans to add large computer systems during the next two to three years. It is expected that sales to these sectors will reach 12% of total computer sales in India by March 1996.

An expanding service sector has contributed to the sales growth rate of computers. Domestic airlines, the Indian railways, private truck operators, and travel agents, among others, have computerized their operations in major business centres and will extend this facility to their branches. These changes are expected to contribute to significant computer sales in the coming years.

Most state governments offer fast track clearance facilities and incentives to encourage environment-friendly electronic projects. Several leading computer manufacturing ventures have been established in the past two years in India, including Digital Equipment, Dell, Hewlett Packard, and Apple. These projects import components not manufactured in India.

Firms could work closely with the Confederation of Indian Industry, the All India Computer Manufacturers Association, the Manufacturers' Association of Information Technology, and the National Association of Software and Service Companies (NASSCOM), which periodically organize seminars and product exhibits to highlight new products and technologies.

Software

The Indian software industry, renowned for its sophistication and technical competence, is growing rapidly. Skill and expertise have been developed in areas such as design and implementation of management information and decision support systems, banking, insurance and financial applications, conversion methodologies and technologies, expert systems, A1 and fifth generation systems, CAD, CAM and CIM. Indian software enterprises have completed projects for international organisations. Many of the world's top IT companies have set up operations in India. The software industry is expected to reach 30 billion Indian rupees or approx C\$1.2 billion by 1996.



Great potential exists for Canadian software companies to enter the Indian market by joining with Indian software companies to develop software for the domestic and third country markets.

Space Communications, Remote Sensing and GIS

Market potential exists for Canadian companies in the space, remote sensing and geographic information systems (GIS) sectors. The Indian Space Research Organization [ISRO] is keen to have information on Canadian space technology.

The Indian geomatics market represents enormous opportunities for Canada and, in 1995, some estimates placed it at more than C\$100 million with a growth rate of more than 20 percent per annum over the next five years. India's economic policies encompass the rapid development of infrastructure including telecommunications. Modernization of India's geomatics capabilities will therefore be essential for the success of India's economic policies. Decision makers in India have recognized the strategic nature of geomatics technologies for infrastructure development, natural resource management, land information and environmental monitoring. In geomatics, Canada enjoys good exposure in India where past geomatics initiatives resulted in commercial success.

The Survey of India (SOI) is the national survey and mapping organization under the Ministry of Science and Technology. Its responsibilities include geodetic survey control, mapping and production of geographic products, including aeronautical charts. The Indian Space Research Organization (ISRO), of the Department of Space (DOS), is responsible for the overall implementation and planning related to the national space program. The National Remote Sensing Agency and the Space Applications Centre, both under ISRO, carry out much of the remote sensing program. Besides these two primary organizations, a large number of user agencies exist in the government at the central and the state level. These include the ministries of Rural Development, Urban Development, Forests and Environment, Agriculture, Mining and their counterparts at the state level.

Some specific commercial opportunities that exist for the Canadian geomatics firms include:

Urban Mapping: In India, the majority of urban centres and towns do not have up-to-date base maps which are essential for the efficient planning of land use and designing of urban infrastructure. Opportunities to satisfy this need include: the development of technical capabilities of town planning organizations at the Central

and State levels, the generation of digital graphic input for geographic information systems and for base map updating.

Commercial collaboration in Remote Sensing: Canadian remote sensing firms have been doing business with India for over a decade and some have ongoing commercial tie-ups. India has a comprehensive program in space technology and is successfully operating optical remote sensing satellites. The November 1995 launch of RADARSAT, the world's first operational radar satellite, will further strengthen Canada's export position in the supply of radar data-analysis systems and related products and services.

Digital Topographic Databases: The Government of India has begun the establishment of a national topographic digital database in association with Indian geomatics industry, which in turn is establishing links with outside agencies. The potential for the development of applications, products and services employing the geographic information will be impressive in digital form.

Cadastral / Land Information Systems: The need for accurate cadastral information in India, as in many developing countries, is extensive and critical. Decision makers in the public as well as the private sector are facing more and more bottlenecks in implementing development projects, due mainly to delays in compensation settlements for land acquisition. The all too critical political will to update the country's land records has already been announced. Progress on pilot projects carried out jointly by the central and the state governments has also been reported. It is therefore an opportune time for Canada to explore the establishment of links with India's cadastral information program, where the commercial potential is enormous.

The most suitable approach for harnessing this potential in geomatics is through partnering with organizations in India to provide Canadian geomatics products and services in India.

Electronic Components Industry

India started manufacturing on a regular basis in the late 1980's. Prior to this, production was confined almost entirely to the small scale sector. Firms in the small scale sector still account for a fairly large share of the production of simple types of electronic components. The output of the large and organised sector is,



however, gradually expanding. With the growing demand for high quality components, Indian manufacturers are increasingly upgrading their technology in tie-ups with foreign manufacturers.

The Indian electronic components industry grew 30% from 1985 to 1990. The growth of the electronics equipment sector, both consumer and industrial, has greatly contributed to the sustained growth of the components sector.

India continues to import assembled, semi-knocked down, and completely knocked down components. The GOI's Department of Electronics (DoE) projected that the electronics industry will continue to rely on imports for at least 25 % of domestic components.

The growth of the electronic components industry is linked to the growth of consumer and industrial electronic products. The components market grew from US\$954 million in 1990 to US\$1.215 billion in 1991.

The total market for passive electronic components grew from US\$186.4 million in 1991 to US\$212 million in 1992 and is estimated at US\$225 million in 1993. The estimate for 1994 was US\$305 million. This subsector is expected to expand to US\$450 million by 1996.

The liberalisation of technology and component imports, de-licensing, foreign investment and cuts in excise duties have spurred the growth of the electronics sector. The use and production of computers and consumer electronics is expanding rapidly. Output in the sector has grown from Rs8.1 billion in 1980/82 to an estimated Rs123 billion in 1992/93.

Market Access

Most Canadian firms choose to begin with the help of a local representative/agent and then progress to opening a representative office. The engagement of a local agent or local partner is recommended in instances where you may be pursuing GOI projects. Financing options through EDC and/or CIDA can increase competitiveness. Pricing is an important element and Canadian companies' prices are normally high in comparison to the competition.

Almost all foreign companies in India use reputable and aggressive local agents to bridge cultural differences. These representatives are essential as they can provide timely market intelligence, assess potential clients, undertake contract negotiations,

and, more importantly, develop crucial personal contacts that are often vital to securing contracts in India. Already more than 250 Canadian companies have agency agreements in India.

Foreign firms can hold up to 100 percent equity in facilities set-up in the Indian export processing zones (EPZs). In the EPZs, the firms are required to export 75 percent of their total production and are allowed to sell the balance in the domestic market, after paying the duties on the imported components and materials. All exports receive several incentives such as Cash Compensatory Support, a tax holiday for five years, and a waiver from income tax on the export profits. Repatriation of the profits and the dividends are allowed. Several computer hardware assembly operations have been established in these zones and the state governments are optimistic that more such ventures will be incorporated in the next two to three years.

No special marking or labelling requirements exist in trading with India. Customs officials require information relating to the name, number of pieces, air waybill details, and the country and port of origin to assess the value of the import duty. Generally, these details will be incorporated on the air waybill.

A letter of credit is generally an accepted method of payment for imports.

Complexity of the Indian Business Environment

While it is considerably easier to do business in India today, the complexity of the Indian business environment still presents challenges for foreign business.

Bureaucratic Bottlenecks. While investment approvals have been greatly facilitated and the restrictive "Import Licence Raj" has nearly been abolished, bureaucratic bottlenecks still exist in implementing projects or in clearing shipment through customs. Reforms have not trickled down to the lower echelons of the bureaucracy, especially at the state level.

Privatisation Policy Guidelines. The GOI has privatised services in many sectors such as power, roads, and telecommunications - all of which offer excellent opportunities for Canadian companies. However, there are still conflicting policies and often vague guidelines regarding government guarantees, rates of return, and the bidding process.

Connections. India remains a country where connections play a pivotal role in



success. It is not so much the information you possess, but how you can use it and how you influence decision makers. This applies to the public sector and, to a lesser degree, to the private sector. Thus having the right local representative or joint venture partner is critical to success.

Cultural differences. While India has a strong entrepreneurial class, there are business methods unique to the country. India provokes one's senses, and first impressions may create internal conflicts that can influence business decisions. While the private sector functions like a free market economy, in many instances bureaucratic mind set remains inward-looking and resistant to change. Time and patience on the part of the Indian business and its foreign partners is the order of the day.

Appearances. India is a market where appearances and first impressions can be very deceiving. Business is part of a complex socio-economic environment; it is important to develop a relationship of trust and shared expectations with partners and clients and verify the accuracy of information.

Infrastructure. India's communications, power and transportation systems have not reached world class standards and can be frustrating at times when quick decisions have to be made.

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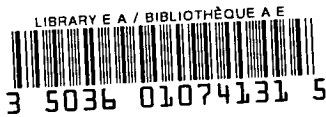
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